REMARKS

The present document is submitted in reply to the Office Action dated January 6, 2011 ("Office Action").

Applicants have amended the Specification to correct three clerical errors by (1) replacing "Referential Example 1" recited in Example 9 with "Referential Example 11", (2) replacing "85/15" recited in Referential Example 10 with "90/10", and (3) replacing "90/10" recited in Example 9 with "85/15". Support for the amendments can be found in the Specification at page 64, lines 10-12 and 24-26.

Applicants have amended claims 34, 36, and 38 by removing a limitation, which, according to the Examiner, is not fully supported by the Specification. Further, Applicants have corrected clerical and typographical errors in claims 10 and 38. Finally, Applicants have changed dependencies of claims 6, 7, 23, and 29-33 to cover particular embodiments of their invention.

Claims 5, 15-21, 27 and 28 were previously cancelled.

Claims 1-4, 6-14, 22-26, and 29-39 are pending and under examination.

Applicants respectfully request that the Examiner reconsider this application in view of the following remarks.

Objection to the Specification

The Examiner objects to the Specification on two grounds. See the Office Action, pages 11-12, carryover paragraph.

First, the Examiner deems that the mass ratio of zinc to aluminum 90/10, described in Example 9 is not supported by Referential Example 1 or other Referential Examples. Applicants have amended Example 9 by replacing "Referential Example 1", a typographic error, with "Referential Example 11". Thus, the mass ratio of zinc to aluminum described in Example 9 should be the same as the one described in Referential Example 11, i.e., 85/15, based on 132.9 parts of $ZnSO_4$ and 110.1 parts of $Al_2(SO_4)_3x14\text{-}18H_2O$ (see page 64, lines 24-26). More specifically, the mass ratio of zinc to aluminum can be calculated as follows: (132.9x65.39/161.45) over (110.1x26.98x2/630.36) or

approximately 85/15, in which 65.39 is the atomic weight of zinc, 161.45 is the molecular weight of $ZnSO_4$, 26.98 is the atomic weight of aluminum, 2 refers to two aluminum atoms in $Al_2(SO_4)_3x14\text{-}18H_2O$, and 630.36 is the average molecular weight of $Al_2(SO_4)_3x14\text{-}18H_2O$. Accordingly, Applicants have also amended the ratio"90/10" recited in Example 9 to read "85/15." Upon entry of the above mentioned amendments, the mass ratio 85/15 now recited in Example 9 is supported by Referential Example 11, thereby rendering moot the objection on this first ground.

Second, the Examiner deems that the mass ratio of zinc to silicon 90/10 described in Example 8 should read 85/15, i.e., the same as that described in Referential Example 10. Applicants disagree. The mass ratio of zinc to silicon recited in Referential Example 10 should have read 90/10 based on 114.5 parts of $ZnSO_4$ and 17.6 parts of Na_2SiO_3 (see page 64, lines 10-12). More specifically, the mass ratio of zinc to silicon can be calculated as follows: (114.5x65.39/161.45) over (17.6x28.09/122.06) or approximately 90/10, in which 65.39 is the atomic weight of zinc, 161.45 is the molecular weight of $ZnSO_4$, 28.09 is the atomic weight of silicon, and 122.06 is the molecular weight of Na_2SiO_3. Accordingly, Applicants have replaced "85/15" recited in Referential Example 10 with "90/10," which, in turn, supports the mass ratio recited in Example 8. This amendment has rendered moot the objection on this second ground.

Rejection under 35 U.S.C. § 112, first paragraph (written description)

The Examiner rejects claims 1, 8, 10, and 34-39 for failing to comply with the written description requirement on two grounds. See the Office Action, page 12, Item 7, first paragraph.

First, claims 1, 8, 10, 35, 37, and 39 are rejected for not being supported by Examples 8 and 9 on the ground that each of these examples contains conflicting information. See the Office Action, pages 12 and 13, carryover paragraph. As pointed out above, Applicants have amended the Specification to correct the clerical errors that cause the conflictions. Thus, the ground for the rejection has been overcome.

Second, claims 34, 36, and 38 are rejected for not being supported by the Specification on the ground that the recitation "the particle diameter of the complex oxide

hydrate is about 0.36 μm" does not apply to the full scope of these claims. See the Office Action, page 13, last paragraph. For the sole purpose of moving the case forward, Applicants have removed this recitation from the claims at issue, thereby removing this ground for rejection.

Rejection under 35 U.S.C. § 103

Claims 1-4, 6-14, 22-26, and 29-39 are rejected for obviousness over Takai et al., US Patent 6,284,362 ("Takai") in view of Kurihara et al., US Patent 5,110,586 ("Kurihara"). See the Office Action, page 14, lines 2-4.

I

Claim 1 will be discussed first.

This claim is drawn to a water-absorbent resin composition that contains an absorbent resin and a complex oxide hydrate. The complex oxide hydrate includes zinc and silicon or zinc and aluminum, with the mass ratio of zinc to silicon or aluminum being 82/18 - 99/1.

According to the Examiner, the primary reference Takai discloses an absorbent composition containing a microfiller and a water absorptive resin (i.e., a hydrogel), and, optionally, further containing a deodorant. See the Office Action, page 14, second paragraph.

Also according to the Examiner, the secondary reference Kurihara discloses a deodorant particle containing zinc oxide and at least one of aluminum oxide and silicon oxide, with the molar ratio of 5/95 - 95/5. See the Office Action, pages 14 and 15, carryover paragraph. The molar ratio 5/95 – 95/5 of zinc to silicon or aluminum is equivalent to a mass ratio of 11/89 - 98/2.[1]

The Examiner proceeds to conclude that it would have been obvious to one of ordinary skilled in the art to use the Kurihara deodorant particle as the microfiller and

[1] The mass ratios equivalent to the molar ratios of zinc to silicon 5/95 and 95/5 can be calculated as follows: 5x65.39/(95x28.09) = 11/89 and 95x65.39/(5x28.09) = 98/2, respectively, in which 65.39 is the atomic weight of zinc and 28.09 is the atomic weight of silicon. Likewise, The mass ratios equivalent to the molar ratios of zinc to aluminum 5/95 and 95/5 can be calculated as follows: 5x65.39/(95x26.98) = 11/89 and 95x65.39/(5x26.98) = 98/2, respectively, in which 65.39 is the atomic weight of zinc and 26.98 is the atomic weight of aluminum.

deodorant in the Takai composition in order to take advantage of the deodorizing ability of the particle. See the Office Action, page 15, lines 7-10. In other words, it is the Examiner's position that it would have been obvious to **replace** the microfiller and deodorant in the Takai composition with the Kurihara deodorant particle to produce the composition of claim 1. Applicants respectfully traverse.

A

Takai teaches that a deodorant can be optionally included in an absorbent composition containing an absorbent resin and a microfiller. See above. Unlike the optional deodorant, the microfiller in the Takai composition is essential. Also see above. Indeed, the microfiller plays an important role in improving the surface area, absorption speed (especially diffusive absorption speed) and the initial amount of absorption under applied pressure. See Takai, column 1, lines 12-15. Given the importance of the microfiller taught in Takai, a skilled person would **not** have been motivated to **replace** it with an optional deodorant that may compromise the performance of the resultant absorbent composition. Thus, Takai does **not** teach or suggest **replacing** the essential microfiller with a deodorant, or, for that matter, **replacing** both the essential microfiller and a deodorant with another deodorant.

Kurihara teaches use of zinc oxide and at least one of aluminum oxide and silicon oxide as a deodorant, **not** as a microfiller. Again, see above. Absent mention of any microfiller, Kurihara clearly does not cure the deficiency of Takai, i.e., failure to teach or suggest **replacing** the microfiller and the deodorant with another deodorant.

Thus, contrary to the Examiner's position, Takai and Kurihara, in combination, do not teach or suggest **replacing** the microfiller and the deodorant in a Takai absorbent composition with another deodorant to arrive at the composition of claim 1.

For the foregoing reason, claim 1 is not rendered obvious by Takai and Kurihara, either separately or combined.

B

Applicants would like to bring to the Examiner's attention that even if she has established a *prima facie* case of obviousness (which Applicants do not concede) against

claim 1 relying on Takai and Kurihara, that case can be successfully rebutted by the **criticality** of the mass ratio of zinc to silicon or aluminum required by claim 1.

It is well known in the art that "[if] the hygroscopic blocking ratio exceeds 30 mass%, the excess will entail such disadvantages as impairing the fluidity of powder during the production of disposable diaper, for example, and rendering the production of the disposable diaper difficult." See the Specification, page 39, line 30 through page 40, line 3.

As shown in the Specification, a complex oxide hydrate having a mass ratio of zinc to silicon or aluminum, e.g., 82/18, 85/15, and 90/10 within the range of 82/18 - 99/1 recited in claim 1, readily reduced the hygroscopic blocking ratio of an absorbent resin from 100 mass% to 0 mass%. See e.g., Table 4, Examples 1, 8, 9, and 10 vs. Comparative Example 4. Also as shown in the Specification, a complex oxide hydrate having the mass ratio of zinc to silicon 40/60, i.e., outside the range recited in claim 1, did not reduce the hygroscopic blocking ratio of an absorbent resin at all. See Table 4, Comparative Examples 5 and 6.

In short, the mass ratio range of zinc to silicon or aluminum, i.e., 82/18 - 99/1, required by claim 1 is critical for producing an absorbent composition having an unexpectedly low hygroscopic blocking ratio (e.g., 0 mass%).

As pointed out by MPEP § 2144.05 III:

> Applicants can rebut a *prima facie* case of obviousness based on overlapping ranges by showing the **criticality** of the claimed range....[T]he applicant must show that the particular range is critical, generally by showing that the claimed range achieves **unexpected** results relative to the prior art range (emphases added).

As discussed above, a complex oxide hydrate having the mass ratio of zinc to silicon 40/60 did not reduce the hydroscopic blocking ratio (i.e., 100 mass%); and, on the other hand, a complex oxide hydrate having a mass ratio within the **critical** range of 82/18 - 99/1 recited in claim 1 reduced the hydroscopic blocking ratio to 0 mass%.

Takai does not teach any mass ratio of zinc to silicon or aluminum. Kurihara only teaches the mass ratio range of 11/89 - 98/2, much broader than the **critical** range of

82/18 - 99/1 required by claim 1 and including 40/60. Relative to the very broad Kurihara range of 11/89 - 98/2, the critical mass ratio range of 82/18 - 99/1 recited in claim 1 is **unexpected.**

Further, the same mass ratio range required by claim 1 is also **critical** for preventing exfoliation (i.e., separation of metal oxides from a water-absorbent resin in a swollen state), as evidenced by improved abilities for removing odorants, e.g., hydrogen sulfide and ammonia. See the Specification, Table 2, Examples 1, 8, and 9 vs. Comparative Examples 5 and 6. More specifically, exfoliation was prevented by the complex oxide hydrate having a mass ratio within the **critical** range of 82/18 - 99/1 as required by claim 1, but not by that having a mass ratio of 40/60. Again, relative to the very broad Kurihara range of 11/89 - 98/2, the **critical** mass ratio range of 82/18 - 99/1 recited in claim 1 is **unexpected**.

For this second and independent reason, claim 1 is not rendered obvious by Takai and Kurihara, taken alone or in combination.

II

Like claim 1, claims 2-4, 6, 7, 9, 11-14, 23, 24, 29-35, all dependent from claim 1, are also not rendered obvious by Takai and Kurihara, for at least the same reasons set forth in Subparts I-A and I-B above.

Claims 8 and 10 are drawn to an absorbent material for sanitary product and a method for producing a water absorbent resin composition, respectively. They each also recite all of the limitations, including "the mass ratio of the content of zinc and the content of silicon or aluminum is in the range of 82/18-99/1," required by claim 1. Thus, for at least the same reasons provided above, claims 8 and 10 are not rendered obvious by Takai and Kurihara. Nor are claims 22, 25, 26, and 36-39, all of which depend from either claim 8 or 10.

III

The Examiner also rejects each of claims 2-4, 6-9, 11-14, 22-26, and 29-39 on one of eleven additional grounds over Takai or Kurihara.

Applicants note that none of these eleven grounds relates to the two points of patentability discussed separately in Subparts I-A and I-B above. In other words, they do not rebut in any way these two points of patentability as applied to the claims at issue here.

For the two reasons set forth in Subparts I-A and I-B, claims 2-4, 6-9, 11-14, 22-26, and 29-39 remain patentable. [2]

Double-Patenting rejection

The Examiner rejects claims 1, 4, 6-10, 12, 22-26, and 29-39 for obviousness-type rejection, relying on (1) claims 1-4, 6, 21-22, 24, 26, and 27-29 of copending Application 10/555,707, (2) claims 1-6, 10, 12, 14, and 18-25 of copending Application 10/570,965, (3) claims 1-5, 9, and 10 of US Patent 7,510,988, and (4) claims 1, 6, and 11-15 of US Patent 7,473,470. See the Office Action, page 2, the beginning of Item 2 through page 11, the end of Item 5.

Applicants would like to address this double-patenting issue after the Examiner has removed the obviousness rejection discussed above.

CONCLUSION

It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment.

In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed.

Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the

[2] As the rejected claims are patentable for two reasons independent of the eleven additional grounds, it is not necessary for Applicants to traverse these additional grounds.

amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.

No fee is believed to be due. Please apply any other charges or credits to Deposit Account No. 50-4189, referencing Attorney Docket No. 60004-111US1.

Respectfully submitted,

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